

## EGA Mathematics Department Curriculum Intent

### Introduction

We celebrate mathematics as the most powerful and interesting system of thought ever invented. As part of our cultural heritage, it can uniquely solve problems and describe the world from the flow of blood in our veins to financial markets to the inside of black holes.

Maths is essential to everyday life, critical to science, technology and engineering, financial literacy and most forms of employment. We deliver a high-quality mathematics education so all our students understand the world and take their rightful place within it.

Our curriculum nurtures an appreciation of the beauty of mathematics and its power to solve problems and transform lives. We want students to enjoy doing maths and to be curious and have a “can-do” attitude to problem solving.

All of motivates and supports the highest outcomes for our girls and maximises the number of young women studying and using mathematics into adulthood.

### School Context

As an all girl’s school, it is an important part of our work to celebrate maths for young women as a route into academic, work and personal fulfilment.

Our community includes some who start with a disadvantage in life. Functional mathematics helps students to maximise their life chances, increasing both their opportunities and the choices they have in study and employment.

For a few, maths causes anxiety and the school is welcoming of students with Special Educational Needs. The department provides appropriate support for all by making maths accessible, building on skills from the primary curriculum and stretching the highest achieving.

Our extended Super-Curriculum provides an additional opportunity to engage students and advertise the opportunities and career choices mathematics gives.

### Curriculum content

We deliver the national curriculum strands to all students to support them to:

- ☐ *become fluent in the fundamentals of mathematics, building basic skills and mathematical knowledge*
- ☐ *reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language*
- ☐ *solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication*

We cover all areas of the maths curriculum (algebra, number and ratio, data handling and geometry) and make connections across the curriculum so pupils are able to move fluently between different representations of mathematical ideas.

These links extend beyond mathematics to support other areas of the school.

### How the EGA mathematics department deliver the curriculum

- We ensure students and parents are informed of what they are learning and their place in the learning journey through **assignment sheets** that detail what will be taught and tested each half term.
- **Starters** are designed to either support retention through revisiting key ideas from previous topics (**retrieval**) or to support students in recapping key knowledge needed for the lesson ahead.
- All teachers **model** worked examples in lessons so pupils can recognise the steps required to solve a problem and reduce the load on working memory.
- We use **low stakes testing** (in the form of Independent Learning Tasks or ILTs) to ensure students and teachers are aware of strengths and weaknesses throughout a unit of work and are developing their skills and knowledge through Directed Improvement and Reflection Tasks (**DIRT**).
- ILTs are designed so that students practise both quick answer **fluency** questions as well as their **problem solving** skills.
- The curriculum is designed for students to acquire a **deep understanding** of mathematical ideas, drawing links with other topics and covering each area of maths at a more complex level and allowing more time for deeper exploration.
- The units have been **carefully sequenced** to ensure that students develop a strong understanding of the fundamental building blocks of number and algebra in the first term, while also stretching all students to deepen their knowledge. Subsequent units are designed to build on previous knowledge while accessing new skills.
- We provide **early support** for students who did not reach expected standards at KS2 through a bespoke scheme of work to support their mathematical understanding and basic number skills so that they are able to access the secondary curriculum in a more meaningful way.
- We set **homework** that both consolidates current topics being taught and develops students' longer term retention of other mathematical topics.
- End of unit assessments provide a summary of what has been learned and gaps in student understanding. This information is shared between teachers, parents and students through **question level analysis (QLA)** which are in students' books.
- Students who join EGA below the expected standard in maths are supported by a curriculum offer tailored to their needs that incorporates the use of **manipulatives**.
- We offer a **super-curriculum** that gives all students a wider experience of mathematics. This increases the profile of maths in school, provides excellent opportunities for students in and out of the classroom and makes greater use of our wonderful capital city which is teeming with mathematical possibilities.
- Teachers are supported by **training** to improve their pedagogical subject knowledge and their expert teaching skills.
- The department **works together collaboratively** to develop our practice, test out new ideas and share what works best.